

Psychological dysfunctions as a result of longterm exposure to organic solvents

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Battery. Low exposure was well below the maximum acceptable concentration (MAC), which is 0.3 mg/m³ in the USSR. High exposure exceeded the MAC 10 to 25 times, and exposure duration was of 7 or more years. Data were analysed for deviation from normal, dose-effect and dose-response relationships, and predictors of exposure.

B. D. MOORE and D. R. COPELAND. Neuropsychological Performance of Pediatric Cancer Patients in Remission and in Relapse.

The neuropsychological status of 33 children treated for cancer at this institution was evaluated at diagnosis and 2 years postdiagnosis. Twenty one children with various forms of leukemia were treated with systemic and intrathecal chemotherapy, and were in complete and continuous remission. Twelve patients with mixed cancer diagnoses had experienced relapse requiring more intensive chemotherapy ($n = 9$), or chemotherapy plus cranial radiation therapy ($n = 3$). Results indicated that children who eventually relapsed had poorer test performance even at diagnosis. Group main effects were obtained on higher order cognitive skills (VIQ, academic achievement, abstract reasoning) and fine-motor speed. These results suggest that neuropsychological status may already be compromised at diagnosis in those who eventually relapse. Disease course should therefore be considered in studies of the effects of cancer and cancer treatment on neuropsychological outcome in children.

R. A. BORNSTEIN. Neuropsychological Impairment in Candidates for Cardiac Transplantation.

Fifty-three patients, who were candidates for heart transplantation, underwent neuropsychological examination as part of a pretransplant evaluation. The battery included the WAIS-R, WMS-R, and an expanded Halstead Reitan Battery. Subjects' mean age was 45.1 years, and mean education was 12.1 years. The sample was approximately evenly divided among ischemic and dilated cardiomyopathy. Comparisons of these two groups failed to reveal any differences in degree of cognitive impairment. The most frequently impaired areas of function included abstract reasoning, sustained concentration, mental flexibility, and fine psychomotor functions. The proportion of patients who were impaired on these tasks ranged from 40% to 80%. Memory functions were impaired in approximately 25%. There were no consistent localizing or lateralizing patterns of deficit. It is unclear if this impairment is due to reduced cerebral oxygenation, secondary to diminished cardiac output, fatigue, medication effects, or sequelae of hypoxic events. Regardless of the etiology, it is clear that a large proportion of cardiac transplant candidates may have a broad range of neurobehavioral deficits which could have important implications for the pre- and postsurgical management of these patients.

M. HOHL and T. LANDIS. Neuropsychological Deficits in MS Patients with Focal and Multiple Small Lesions Detected by MRI.

The initial results of an ongoing study of neuropsychological and MRI findings in MS patients are reported. From the data thusfar, the following two subgroups have been delineated. The first subgroup consists of patients with characteristic multiple, small bilateral supra- and periventricular white matter lesions, who show mainly short-term memory and frontal deficits. This finding is in agreement with the literature, and corresponds to bilateral deep fronto-temporal dysfunction. The second subgroup consists of patients with single, large plaques, in addition to the multiple, small lesions, who show additional impairments which correspond to the locus of the plaque. These impairments, however, were less pronounced than might be suggested by the size of the lesion. Thus, contrary to the often-held view, focal disturbances of higher cortical functions are not rare in MS.

R. S. VAN GELDER, M. M. T. T. DIJKMAN, B. HOPKINS, G. P. VAN GEIJN, and D. C. HONDEAU-LONG. Fetal Head Orientation Preference at the Gestational Ages of 16 and 24 Weeks.

This research concerns the assessment of fetal head position in 16 healthy subjects at two ages: before ($n = 19$) and after ($n = 7$) midgestation. Three main questions were addressed: Is there any evidence of a head orientation preference (HOP)? If so, what is the first age of appearance? Is there any indication of an age-related trend? Observations were carried out by means of real-time ultrasound recordings using a purpose-derived method of scanning. Across both ages, the head was held in the midline for an average of 60% of the recording time, with no clear preference for right or left. On average, a HOP for midline occurred more often at 24 (70%) than at 16 (50%) weeks. Individual results showed that 11 cases had a particular HOP for at least 70% of the time. This last finding concurs with that of Gardner et al. (1977), who found that healthy pretermers only show a clear HOP (right or left) after a gestational age of 35 weeks, an age at which recognizable and stable behavioural states appear for the first time (Nijhuis et al., 1983).

P. G. J. GANZEVLES and J. JOLLES. Psychological Dysfunctions as a Result of Longterm Exposure to Organic Solvents.

Workers chronically exposed to organic solvents often have physical and mental complaints. Comparison of the results of epidemiological studies reveal that the cognitive dysfunctions (as measured by psychometric tests) in these cases have several elements in common. On tasks in which speed of processing is of minor importance, and tasks which emphasize planning and feedback processing, experimental and control groups per-

form on the same level. When tests emphasize automatic, overlearned aspects of information processing, however, significant differences can be measured. Three patients with more than 5 years of exposure to organic solvents were tested with a specially composed neuropsychological battery. Without time pressure, there were no problems in higher cognitive, planning, and feedback functions. When time limits were imposed, or when speed was essential in the task, performance decreased sharply below premorbid level of functioning.

M. VERHAGEN and H. VAN DER VLUGT. A Specific Cancellation Task for the Identification of Learning-Disabled and Retarded ADHD Children: Standardization and Validation.

Due to shortcomings of existing instruments, a specific test for identification of ADHD children was developed. A serial cancellation task which measured speed, omissions, orientation errors, and corrections was designed. With this task, 80% of ADHD children were discriminated. Data regarding the standardization using a control population, and discriminant function of the test will be presented.

B. A. SCHMAND, J. LOUMAN, TH. SCHAAP, and J. HOEKS. A Quick, Low-Budget Method of Test Construction. Dutch Adult Reading Test as a Illustrative Example.

A method of rational item preselection is described and illustrated. The method involves item difficulty estimates from a pool of items, by a group of judges (preferably experts). An initial version of the test is composed based on mean estimated item difficulties. With this prototype, the conventional steps of test construction can proceed. This judgment phase facilitates the process of test construction with a minimum of cost. The method is illustrated by the Dutch Adult Reading Test, which is intended to be the Dutch version of the National Adult Reading Test by Nelson and O'Connell. Data on the feasibility and validity of the method will be presented.

K. A. ESPY, D. J. FRANCIS, J. M. FLETCHER, and B. P. ROURKE. Effects of Joint Application of Raw Score and Regression-Based Criteria in the Definition of Reading Disability.

Effects on neuropsychological performance were examined for joint application of raw score and regression-based criteria for selection of learning-disabled children. Three, nonoverlapping groups of reading-disabled children were identified: children labeled as impaired under both (IBOTH), raw score (IRAW), and regression-based (IREG) criteria. Reading groups differed significantly on neuropsychological performance. The nature of group differences in a function of the relationships among reading, intellectual, and neuropsychological performance. Results indicate that the

use of regression-based definitions may identify a more homogeneous group of reading-disabled children in which language-processing deficiencies are most strongly correlated with the reading disability itself.

E. A. ZILLMER, A. C. NEWMAN, P. C. FOWLER, and J. D. BALL. Verbal-Performance IQ Discrepancies Among Neuropsychiatric Patients: Implications for Subtle Neuropsychological Dysfunction.

One hundred seventy-nine psychiatric inpatients were administered the WAIS-R and several neuropsychological and academic achievement tests. All subjects were assigned to three groups based on their WAIS-R VIQ-PIQ discrepancy scores: (1) *Low Verbal* (VIQ < PIQ by at least 13 points), (2) *Low Performance* (PIQ < VIQ by at least 13 points), and (3) *Equal* (VIQ-PIQ within 13 points). The *Low Verbal* group made significantly more errors on the Speech Sounds Perception Test, demonstrated lower spelling scores, evinced more aphasic signs, and had more special education placements than did the *Equal* or *Low Performance* groups. The *Low Performance* subjects demonstrated significantly more signs of constructional dyspraxia and performed more poorly on the Grooved Pegboard test. The neuropsychiatric patients who had Verbal-Performance IQ-discrepancies of at least one standard deviation may be at risk for specific, subtle neuropsychological deficits.

P. A. LAURSEN and L. ESKELINEN. The Cognitive Function Scanner: A Computer-Aided Psychological Examination System for Neuropsychological Evaluation.

The Cognitive Function Scanner is a psychological examination system which combines the content of cognitive test methodology with the precision and standardization of advanced computer technology. The cognitive function scanner includes eight tests with a total of 36 test parameters. The level of difficulty of each test is selected so that a reasonable differentiation between individuals with normal function and individuals with minor cognitive dysfunction can be expected. In an epidemiological investigation ($N = 1026$), the validity of the Cognitive Function Scanner, i.e., its specificity and sensitivity, was estimated. For sensitivity estimation, a patient group diagnosed on the basis of traditional neuropsychological tests was used. In both cases, the evaluation rested on percentile scores corrected for age, sex and education, and a fixed set of decision rules.